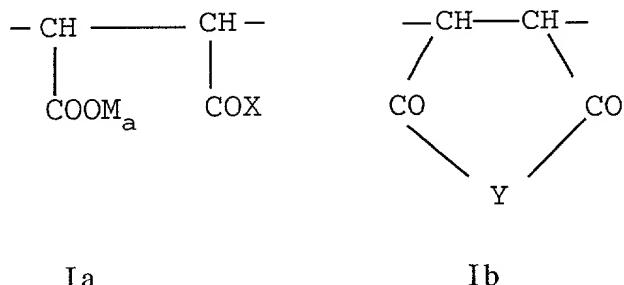


What is claimed is:

1. A process for dispersing a pigment for a paint, printing ink or pigment paste which comprises adding to the pigment co-polymer based on oxyalkyleneglycol-alkylenyl ethers and unsaturated dicarboxylic acid derivatives comprising:

5 a) from about 10 to about 90 mol% of structural groups of the formula

Ia and/or Ib



10 where

M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine radical.

a = 1 or, if M is a divalent metal cation, is 1/2,

X = $-\text{OM}_a$ or $-\text{O}-(\text{C}_m\text{H}_{l+m}\text{O})_n-(\text{C}_m\text{H}_{l+m}\text{O})_o-\text{R}^1$,

15 where

R^1 = is H, an aliphatic hydrocarbon radical, a cycloaliphatic hydrocarbon, an aryl radical which is unsubstituted or substituted,

1 = 1 or 2.

m = 2 to 18.

the index on the hydrogen atom being formed by the product of l and m , and

$n \equiv 0$ to 100, and

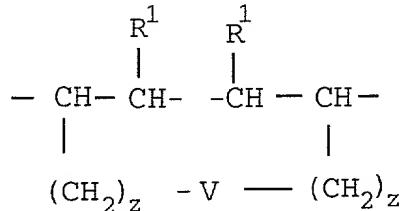
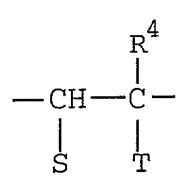
$\alpha \equiv 0 \text{ to } 100$

p = 0 to 3,

q = 0 to 6, t = 0 to 3, and

R¹ and l, m, n and o are as defined above,

c) about 0.1 to about 10 mol% structural groups of the formula IIIa or IIIb



5

IIIa

IIIb

where

R⁴ = H, CH₃

S = -H, -COOM_a, -COOR⁵

10 where R⁵ = aliphatic hydrocarbon radical,

cycloaliphatic hydrocarbon radical,

aryl radical

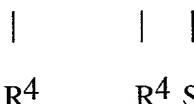
T = -U¹-O-(C_mH_lmO)_n-(C_mH_lmO)_o-R⁶

where l = 1 or 2, m = 2 to 18, and

15 n = 0 to 100 and o = 0 to 100,

U¹ = -CO-NH-, -O-, -CH₂O-,

R⁶ = R¹, -CH₂-CH-U²-C=CH



20 where U² = -NH-CO-, -O-, -OCH₂, -W-R⁷, where

–NHR² and/or –NR² where

R² = R¹ or –CO-NH₂ and also

–Q¹N – Q² – NQ³Q⁴, where

Q¹ is a hydrogen atom or a monovalent hydrocarbon radical;

5 Q² is a divalent alkylene radical;

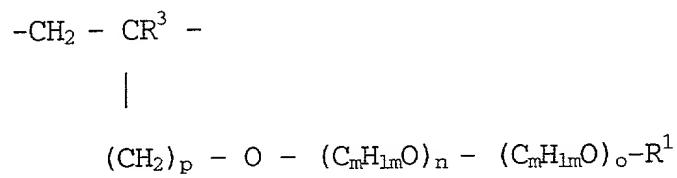
Q³ and Q⁴ are aliphatic and/or alicyclic alkyl radicals; and

unoxidized or oxidized to –Q¹N – Q² – N⁽⁺⁾O⁽⁺⁾Q³Q⁴,

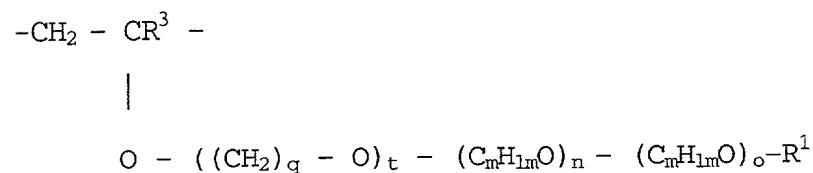
Y = O, NR², R² being as defined above, or

10 N-Q²-NQ³Q⁴, Q², Q³ and Q⁴ being as defined above,

b) from about 1 to about 89 mol% of structural groups of the formula IIa or IIb



15 IIa



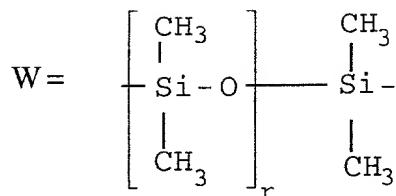
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IIb

in which

R³ = H, aliphatic hydrocarbon radical,

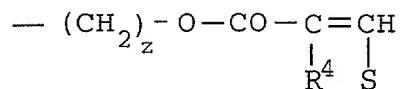
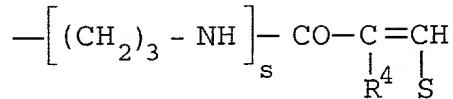
5



$r = 2$ to 100

10

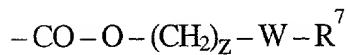
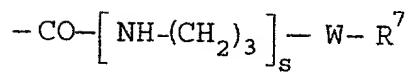
$R^7 = R^1$,



$s = 1$ or 2

$z = 0$ to 4,

15



$-(\text{CH}_2)_z - V - (\text{CH}_2)_z - \text{CH} = \text{CH} - R^1$, where

20

$V = - \text{O} - \text{CO} - \text{C}_6\text{H}_4 - \text{CO} - \text{O} - \text{or} - W -$,

$- \text{COOR}^5$ in the case of $S = - \text{COOR}^5$ or COOM_a ,

and

$V = - \text{O} - \text{CO} - \text{C}_6\text{H}_4 - \text{CO} - \text{O} - \text{or} - W$,

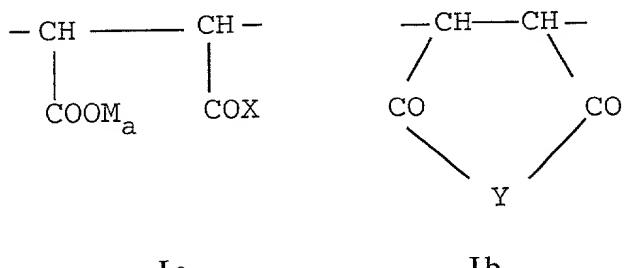
25

the ligands and indices each being as defined above.

2. The method according to claim 1, wherein the copolymers comprise

a) from 10 to 90 mol% of structural groups of the formula Ia and/or Ib

5



where

10 M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic
amine radical.

$a = -1$ or, if M is a divalent metal cation, is $1/2$.

X = $-\text{OM}_a$ or $-\text{O}-(\text{C}_m\text{H}_{2m}\text{O})_n-(\text{C}_m\text{H}_{2m}\text{O})_o-\text{R}^1$,
where

15 R^1 = is H, an aliphatic hydrocarbon radical having 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon having 5 to 8 carbon atoms, an aryl radical having 6 to 14 carbon atoms which is unsubstituted or substituted.

1 = 1 or 2.

20 m = 2 to 18.

the index on the hydrogen atom being formed by the product of l and m, and

$n = 0$ to 100, and

$\alpha \equiv$ 0 to 100

25 -NHR² and/or -NR², where

$R^2 = R^1$ or $-CO-NH_2$ and also

$-Q^1N-Q^2-NQ^3Q^4$, where

Q^1 is a hydrogen atom or a monovalent hydrocarbon radical
5 having 1 to 24 carbon atoms,

Q^2 is a divalent alkylene radical having 2 to 24 carbon atoms,

Q^3 and Q^4 are aliphatic and/or alicyclic

alkyl radicals having 1 to 12 carbon atoms, and

unoxidized or oxidized to $-Q^1N-Q^2-N^{(+)}O^{(-)}Q^3Q^4$,

10

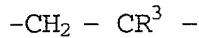
$Y = O, NR^2, R^2$ being as defined above, or $N-Q^2-NQ^3Q^+$

where

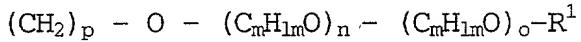
Q^2, Q^3 and Q^4 being as defined above,

15

b) from 1 to 89 mol% of structural groups of the formula IIa or IIb

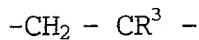


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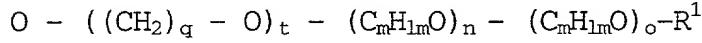


IIa

20



|



25

IIb

in which

$R^3 = H$, aliphatic hydrocarbon radical having 1 to 5 carbon atoms,

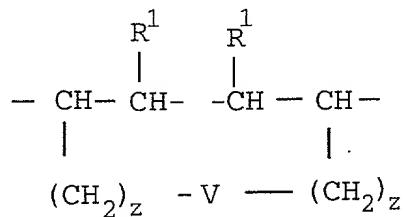
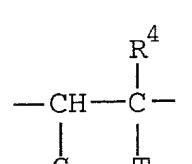
p = 0 to 3,

q = 0 to 6, t = 0 to 3, and

5

R¹ and l, m, n and o are as defined above,

c) 0.1 to 10 mol% structural groups of the formula IIIa or IIIb



10

IIIa

IIIb

where

R⁴ = H, CH₃

15

S = -H, -COOM_a, -COOR⁵

where R⁵ = aliphatic hydrocarbon radical having 3 to 20 carbon atoms,
cycloaliphatic hydrocarbon radical having 5 to 8 carbon
atoms, aryl radical having 6 to 14 carbon atoms

20

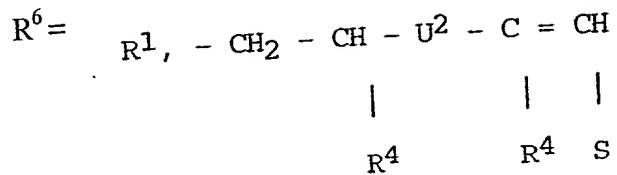
T = -U¹-O-(C_mH_lmO)_n-(C_mH_lmO)_o-R⁶

where l = 1 or 2, m = 2 to 18, and

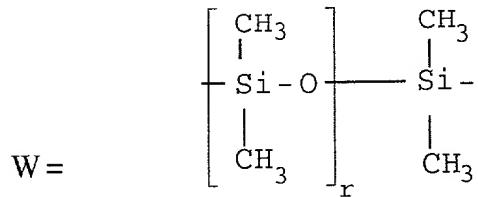
n = 0 to 100 and o = 0 to 100,

U¹ = -CO-NH-, -O-, -CH₂O-,

25

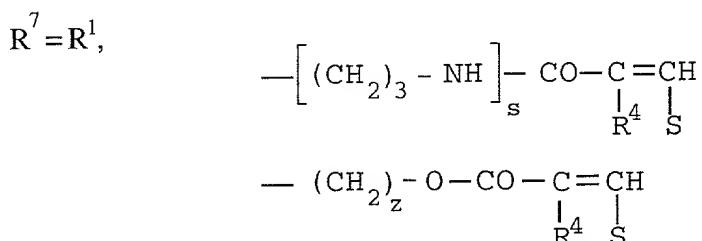


5 where $U^2 = -NH - CO - O - OCH_2 - W - R^7$, where



10

r=2 to 100



$s = 1$ or 2

z=0 to 4,

$$20 \quad -\text{CO}-\left[\text{NH}-(\text{CH}_2)_3\right]_s-\text{W}-\text{R}^7$$

$$- \text{CO} - \text{O} - (\text{CH}_2)_7 - \text{W} - \text{R}^7$$

25 $-\text{CH}_2\text{CH}_2\text{VCH}_2\text{CH}_2\text{CH}=\text{CH}-\text{R}^1$, where

V = -O-CO-C₆H₄-CO-O- or -W-,

$-\text{COOR}^5$ in the case of $\text{S} \equiv -\text{COOR}^5$ or COOM_a ,

and

V = $-\text{O}-\text{CO}-\text{C}_6\text{H}_4-\text{CO}-\text{O}-$ or $-\text{W},$

the ligands and indices each being as defined above;

5 3. The method according to claim 1, where, in the copolymers, up to about 50 mol%, based on the sum of a structural groups a), b) and c), of components, the monomers of which are vinyl, acrylic acid or methacrylic acid.

10 4. The method according to claim 1, where, in the copolymers, up to about 20 mol%, based on the sum of structural groups a), b) and c), of components, the monomers of which are vinyl, acrylic acid or methacrylic acid.

15 5. The method according to claim 1, where the copolymers comprise about 40 to about 55 mol% of a component of formula Ia and Ib; about 40 to about 55 mol% of a component of formula II; and from about 0.1 to about 5 mole% of a component of formula III or IIIb.

20 6. The method according to claim 1, where the copolymers comprise a component of structural formula Ia and/or Ib which is a dicarboxylic acid derivative containing at least one amino oxide group.

25 7. The method according to claim 1, where the copolymers comprise a component of structural formula IIIa and/or IIIb which are obtained by a process comprising vinyl-type polysiloxane compounds.

8. A dispersed pigment obtained by the process according to claim 1.

9. A printing ink, paint or pigment paste which comprises a dispersed pigment according to claim 8.

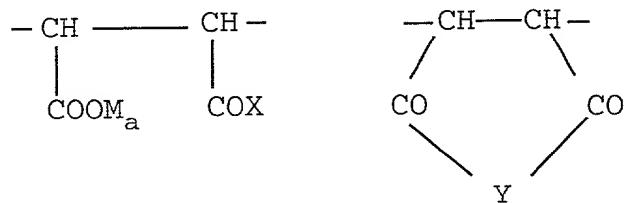
10. An aqueous pigment concentrate which comprises

25 – a pigment;

– a copolymer based on oxyalkylenealkylglycol-alkylene ethers and unsaturated dicarboxylic acid derivative comprising

a) from about 10 to about 90 mol% of structural groups of the formula Ia
and/or Ib

5



I a

I b

where

10 M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic
amine radical,
a = 1 or, if M is a divalent metal cation, is 1/2,
X = $-\text{OM}_a$ or $-\text{O}-(\text{C}_m\text{H}_{lm}\text{O})_n-(\text{C}_m\text{H}_{lm}\text{O})_o-\text{R}^1$,

where

15 R^1 = is H, an aliphatic hydrocarbon radical;
a cycloaliphatic hydrocarbon;
an aryl radical which is unsubstituted or substituted.

l = 1 or 2,

m = 2 to 18,

20 the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

o = 0 to 100,

-NHR² and/or -NR²₂ where
R² = R¹ or -CO-NH₂ and also

-Q¹N-Q²-NQ³Q⁴, where

5 Q¹ is a hydrogen atom or a monovalent hydrocarbon radical;

 Q² is a divalent alkylene radical;

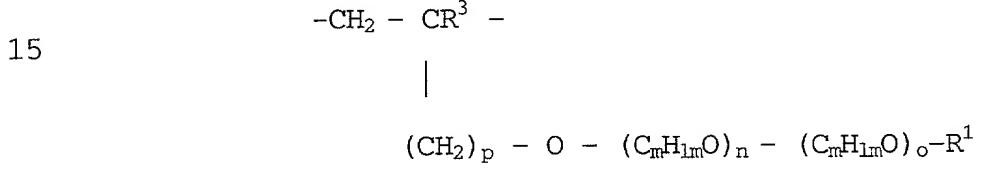
 Q³ and Q⁴ are aliphatic and/or alicyclic alkyl radicals, and
unoxidized or oxidized to -Q¹N-Q²-N(+O(-)Q³Q⁴,

10 Y = O, NR², R² being as defined above, or N-Q²-NQ³Q⁴,

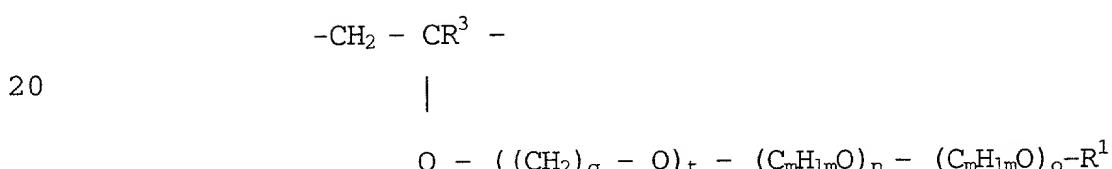
 where

 Q², Q³ and Q⁴ being as defined above,

b) from about 1 to about 89 mol% of structural groups of the formula IIa or IIb



IIa



IIb

25 in which

R³ = H, aliphatic hydrocarbon radical,

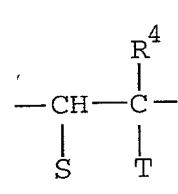
p = 0 to 3,

q = 0 to 6, t = 0 to 3, and

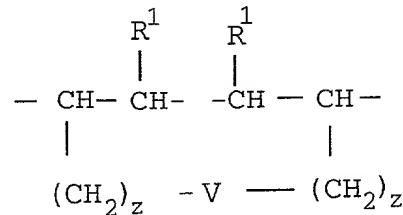
5

R¹ and l, m, n and o are as defined above,

c) about 0.1 to about 10 mol% structural groups of the formula IIIa or IIIb



IIIa



IIIb

10

where

R⁴ = H, CH₃

15

S = -H, -COOM_a, -COOR⁵

where R⁵ = aliphatic hydrocarbon radical;

cycloaliphatic hydrocarbon radical;

aryl radical.

20

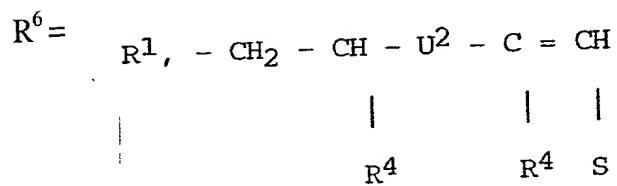
T = -U¹-O-(C_mH_lmO)_n-(C_mH_lmO)_o-R⁶

where l = 1 or 2, m = 2 to 18, and

n = 0 to 100 and o = 0 to 100,

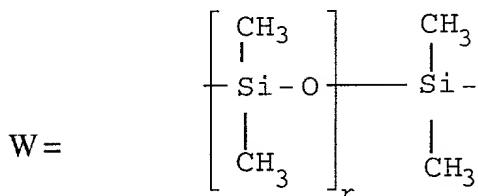
U¹ = -CO-NH-, -O-, -CH₂O-,

25



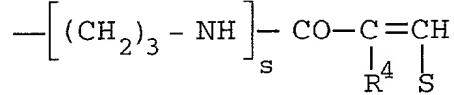
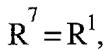
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where $U^2 = -NH - CO - , -O - , -OCH_2 - , W - R^7$, where

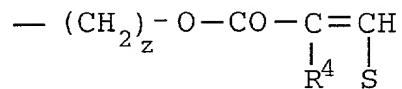


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$r = 2$ to 100

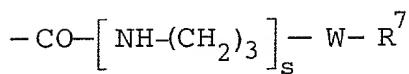


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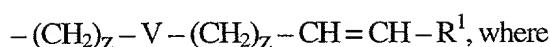


$s = 1$ or 2

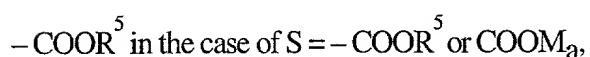
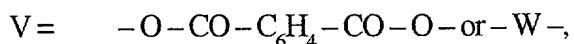
$z = 0$ to 4,



20



25



and

V = $-\text{O}-\text{CO}-\text{C}_6\text{H}_4-\text{CO}-\text{O}-$ or $-\text{W}$,

the ligands and indices each being as defined above;

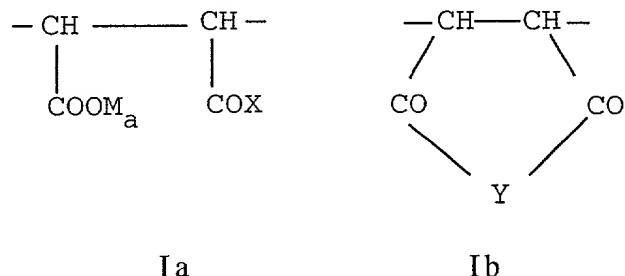
-- water;

5 -- optionally a co-solvent; and
-- optionally an auxiliary.

11. The aqueous pigment concentrate according to claim 10, wherein a co solvent is present and it is a glycol ester or a glycol ester.

10 12. The aqueous pigment concentrate according to claim 10, wherein the copolymer based on oxyalkylenealkylglycol-alkylene and unsaturated dicarboxylic acid derivative comprises:

a) from 10 to 90 mol% of structural groups of the formula Ia and/or Ib



15

where

20 M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine radical,

a = 1 or, if M is a divalent metal cation, is 1/2,

X = $-\text{OM}_a$ or $-\text{O}-(\text{C}_m\text{H}_{l_m}\text{O})_n-(\text{C}_m\text{H}_{l_m}\text{O})_o-\text{R}^1$,

where

R¹ = is H, an aliphatic hydrocarbon radical having 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon having 5 to 8 carbon atoms, an aryl radical having 6 to 14 carbon atoms which is unsubstituted or substituted,

5 l = 1 or 2,

m = 2 to 18,

the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

o = 0 to 100,

10

-NHR² and/or -NR₂² where

R² = R¹ or -CO-NH₂ and also

-Q¹N-Q²-NQ³Q⁴, where

15 Q¹ is a hydrogen atom or a monovalent hydrocarbon radical having 1 to 24 carbon atoms,

Q² is a divalent alkylene radical having 2 to 24 carbon atoms,

Q³ and Q⁴ are aliphatic and/or alicyclic

alkyl radicals having 1 to 12 carbon atoms, and

20 unoxidized or oxidized to -Q¹N-Q²-N(+)-O(-)Q³Q⁴,

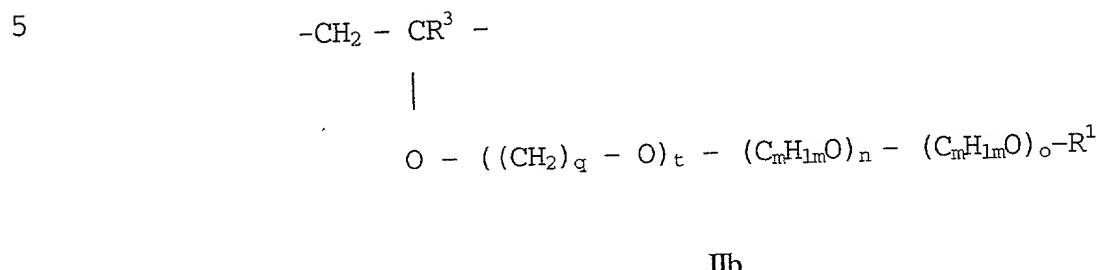
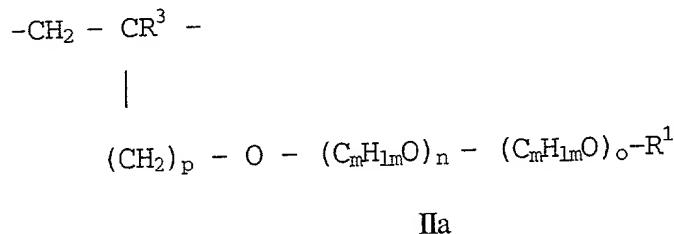
Y = O, NR², R² being as defined above, or N-Q²-NQ³

where

Q⁴, Q², Q³ and Q⁴ being as defined above,

25

b) from 1 to 89 mol% of structural groups of the formula IIa or IIb



10

in which

$\text{R}^3 = \text{H}$, aliphatic hydrocarbon radical having 1 to 5 carbon atoms,

$p = 0$ to 3,

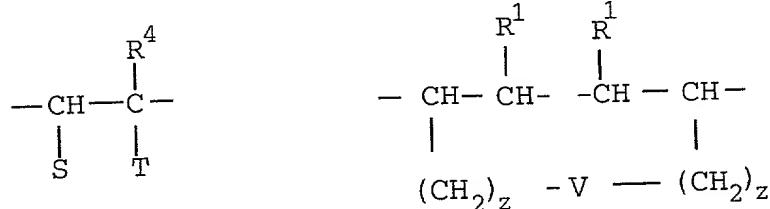
15

$q = 0$ to 6, $t = 0$ to 3, and

R^1 and l, m, n and o are as defined above,

20

c) 0.1 to 10 mol% structural groups of the formula IIIa or IIIb



IIIa

IIIb

where

25 $\text{R}^4 = \text{H}, \text{CH}_3$

S = $-H, -COOM_a, -COOR^5$

where R^5 = aliphatic hydrocarbon radical having 3 to 20 carbon atoms, cycloaliphatic hydrocarbon radical having 5 to 8 carbon atoms, aryl radical having 6 to 14 carbon atoms

5

T = $-U^1-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^6$

where $l = 1$ or 2 , $m = 2$ to 18 , and

$n = 0$ to 100 and $o = 0$ to 100 ,

$U^1 = -CO-NH-, -O-, -CH_2O-,$

10

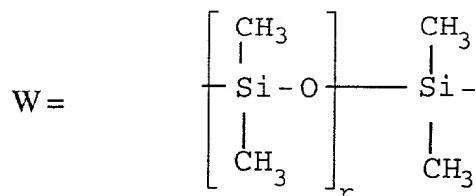
$R^6 = R^1, -CH_2 - CH - U^2 - C = CH$

| | |
R⁴ R⁴ S

15

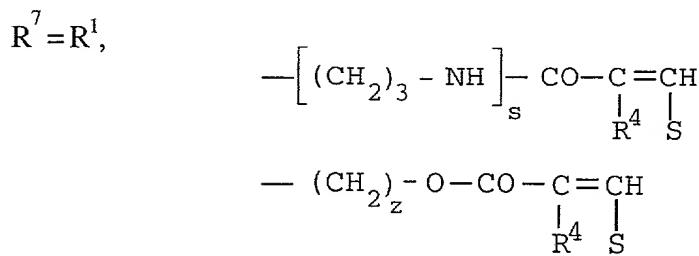
where $U^2 = -NH-CO-, -O-, -OCH_2-, -W-R^7$, where

20



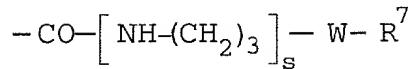
$r = 2$ to 100

25

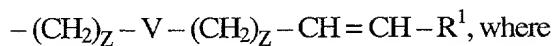


s = 1 or 2

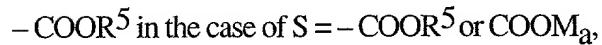
z = 0 to 4,



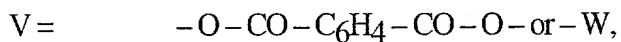
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10



and



the ligands and indices each being as defined above.

15

13. The aqueous pigment concentrate according to claim 10, which contains about 0.1 to about 200 % by weight of copolymers, based on the amount of pigment.

14. The aqueous pigment concentrate according to claim 10, wherein the pigment is an inorganic pigment.

20

15. The aqueous pigment concentrate according to claim 14, wherein the pigment is an iron oxide.

16. The aqueous pigment concentrate according to claim 14, wherein the pigment is a transparent iron oxide.

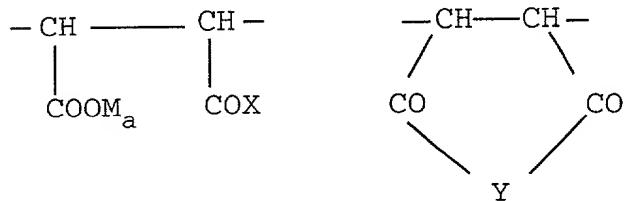
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17. A coating system which comprises an aqueous pigment concentrate according to claim 10 and an aqueous coating material.

18. The coating system according to claim 17, wherein the coating material is a one-component coating material which is based on alkyl, acrylate, epoxy, polyvinyl acetate, polyester or polyurethane resins.

19. The coating system according to claim 17, wherein the coating material is
5 two-component coating material based on hydroxyl-containing polyacrylate or polyester resins with melamine resins or optionally blocked polyisocyanate resins as cross linkers, or polyepoxide resins.

20. A pigment concentrate which comprises
10 -- a pigment;
and unsaturated dicarboxylic acid derivatives comprising:
a) from about 10 to about 90 mol% of structural groups of the formula Ia
and/or Ib



15 Ia Ib

where

M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine

radical,

20 a = 1 or, if M is a divalent metal cation, is 1/2,

X = -OM_a or -O-(C_mH_lmO)_n-(C_mH_lmO)_o-R¹,

where

R^1 = is H, an aliphatic hydrocarbon radical, a cycloaliphatic hydrocarbon, an aryl radical which is unsubstituted or substituted,

l = 1 or 2,

m = 2 to 18,

5 the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

o = 0 to 100,

$-NHR^2$ and/or $-NR^2_2$ where

$R^2 = R^1$ or $-CO-NH_2$ and also

10 $-Q^1N-Q^2-NQ^3Q^4$, where

Q^1 is a hydrogen atom or a monovalent hydrocarbon radical;

Q^2 is a divalent alkylene radical;

Q^3 and Q^4 are aliphatic and/or alicyclic alkyl radicals; and

unoxidized or oxidized to $-Q^1N-Q^2-N(+O(-)Q^3Q^4$,

15 Y = O, NR^2 , R^2 being as defined above, or $N-Q^2-NQ^3Q^4$,

where

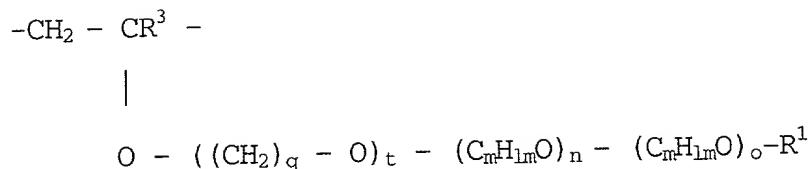
Q^2 , Q^3 and Q^4 being as defined above,

b) from about 1 to about 89 mol% of structural groups of the formula IIa or IIb

20 $-CH_2 - CR^3 -$

$(CH_2)_p - O - (C_mH_{1m}O)_n - (C_mH_{1m}O)_o - R^1$

IIa



5

IIb

in which

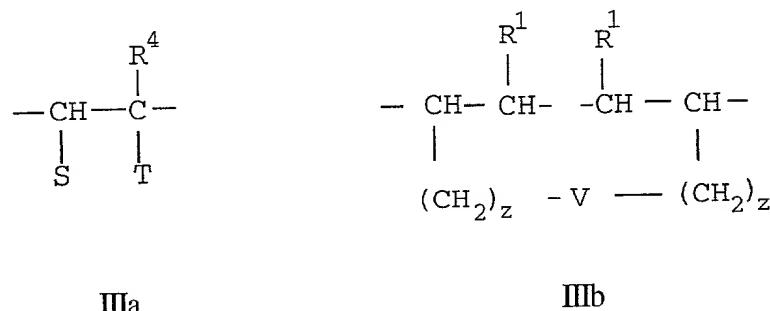
R^3 = H, aliphatic hydrocarbon radical,

$p = 0$ to 3,

10 $q = 0$ to 6, $t = 0$ to 3, and

R^1 and l, m, n and o are as defined above,

c) about 0.1 to about 10 mol% structural groups of the formula IIIa or IIIb



15

where

R^4 = H, CH_3

$\text{S} = -\text{H}, -\text{COOM}_a, -\text{COOR}^5$

where R^5 = aliphatic hydrocarbon radical,

cycloaliphatic hydrocarbon radical,

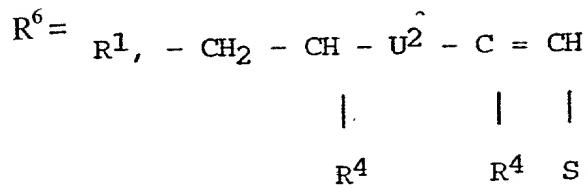
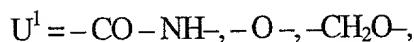
20

aryl radical

$\text{T} = -\text{U}^1-\text{O}-(\text{C}_m\text{H}_{1m}\text{O})_n-(\text{C}_m\text{H}_{1m}\text{O})_o-\text{R}^6$

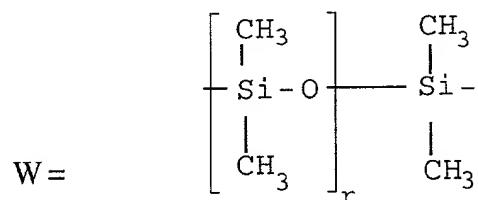
where $l = 1$ or 2, $m = 2$ to 18, and

n = 0 to 100 and o = 0 to 100,



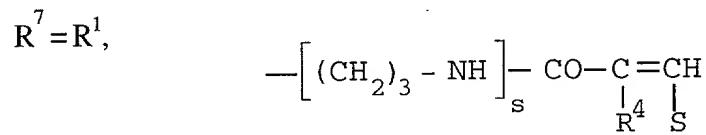
5

where $U^2 = -NH - CO-, -O-, -OCH_2-, W - R^7$, where

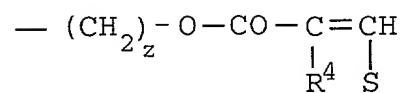


10

r = 2 to 100



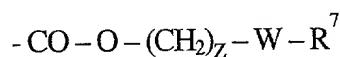
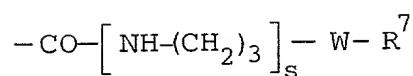
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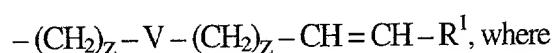
s = 1 or 2

z = 0 to 4,

20



25



–COOR⁵ in the case of S = –COOR⁵ or COOM_a,

and

$V = -O-CO-C_6H_4-CO-O-$ or $-W,$

the ligands and indices each being as defined above;

5

-- optionally, at least one solvent,

-- optionally, an auxiliary.

21. A method for improving the resistance of a paint to weathering which

comprises adding a pigment concentrate according to claim 20 to the paint.

10

22. The pigment concentrate according to claim 20, which further comprises a water-dispersible polymer, which is a polyacrylate, polyurethane, or a polysiloxane.

23. An aqueous pigment concentrate comprising:

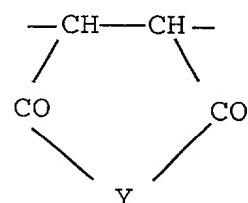
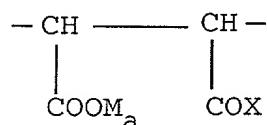
- - a pigment;

-- a copolymer obtained by polymerizing oxyalkyleneglycol-alkenyl

ether monomers and unsaturated dicarboxylic acid derivatives comprising:

a) from about 10 to about 90 mol% of structural groups of the formula

Ia and/or Ib



20

Ia

1b

where

M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine radical,

a = 1 or, if M is a divalent metal cation, is 1/2,

X = $-\text{OM}_a$ or $-\text{O}-(\text{C}_m\text{H}_{lm}\text{O})_n-(\text{C}_m\text{H}_{lm}\text{O})_o-\text{R}^1$,

where

R^1 = is H, an aliphatic hydrocarbon radical a cycloaliphatic hydrocarbon, an aryl radical
5 which is unsubstituted or substituted,

l = 1 or 2,

m = 2 to 18,

the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

10 o = 0 to 100,

$-\text{NHR}^2$ and/or $-\text{NR}_2^2$ where

$\text{R}^2 = \text{R}^1$ or $-\text{CO-NH}_2$ and also

$-\text{Q}^1\text{N}-\text{Q}^2-\text{NQ}^3\text{Q}^4$, where

15 Q^1 is a hydrogen atom or a monovalent hydrocarbon radical;

Q^2 is a divalent alkylene radical;

Q^3 and Q^4 are aliphatic and/or alicyclic

alkyl radicals; and

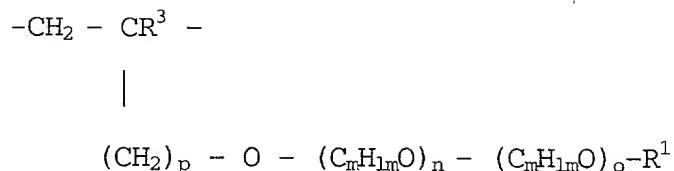
unoxidized or oxidized to $-\text{Q}^1\text{N}-\text{Q}^2-\text{N}^{(+)}\text{O}^{(-)}\text{Q}^3\text{Q}^4$,

Y = O, NR^2 , R^2 being as defined above, or $\text{N-Q}^2-\text{NQ}^3\text{Q}^4$,

20 where

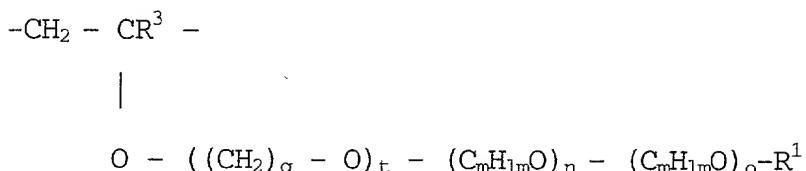
Q^2 , Q^3 and Q^4 being as defined above,

b) from about 1 to about 89 mol% of structural groups of the formula IIa or IIb



IIIa

5



IIIb

10

in which

R^3 = H, aliphatic hydrocarbon radical,

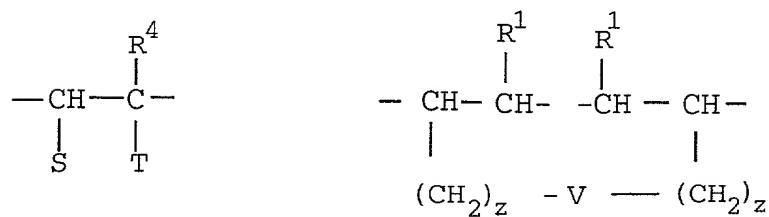
p = 0 to 3,

q = 0 to 6, t = 0 to 3, and

R^1 and l, m, n and o are as defined above,

c) about 0.1 to about 10 mol% structural groups of the formula IIIa or

IIIb



20

IIIa

IIIb

where

R^4 = H, CH_3

S = $-H, -COOM_a, -COOR^5$

where R^5 = aliphatic hydrocarbon radical;

cycloaliphatic hydrocarbon radical;

aryl radical.

5 T = $-U^1-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^6$

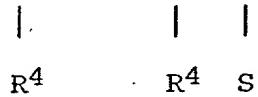
where $l = 1$ or 2, $m = 2$ to 18, and

$n = 0$ to 100 and $o = 0$ to 100,

$U^1 = -CO-NH-, -O-, -CH_2O-,$

$R^6 = R^1, -CH_2 - CH - U^2 - C = CH$

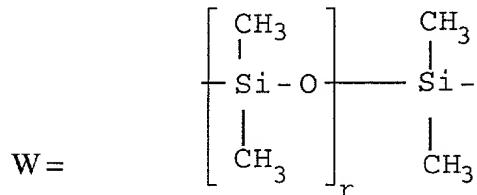
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where $U^2 = -NH-CO-, -O-, -OCH_2, -W-R^7$,

where

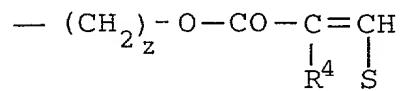
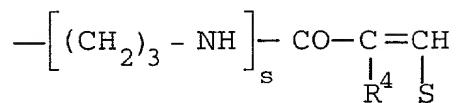
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20

$r = 2$ to 100

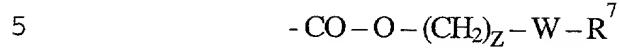
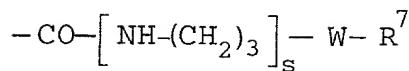
$R^7 = R^1,$



25

$s = 1$ or 2

z = 0 to 4,



- (CH₂)_Z - V - (CH₂)_Z - CH = CH - R¹, where

V = - O - CO - C₆H₄ - CO - O - or - W -,

10 - COOR⁵ in the case of S = - COOR⁵ or COOM_a,

and

V = - O - CO - C₆H₄ - CO - O - or - W,

the ligands and indices each being as defined above

15 wherein the polymerization occurs in aqueous solution at a temperature of from about 20 to about 100°C in the presence of a free-radical initiator.

 -- water;

 -- optionally, a co-solvent; and

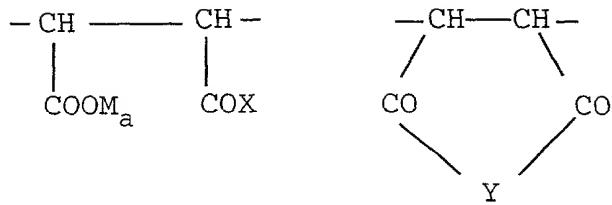
 -- optionally, an auxiliary.

20 24. A process for dispensing a pigment for a paint, printing ink or pigment paste which comprises adding to the pigment a co-polymer obtained by polymerizing oxyalkyleneglycol-alkylenyl ether and unsaturated dicarboxylic acid derivatives comprising:

a) from about 10 to about 90 mol% of structural groups of the formula

Ia and/or Ib

25



Ia

Ib

where

M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine

5 radical,

a = 1 or, if M is a divalent metal cation, is 1/2,

X = $-\text{OM}_a$ or $-\text{O}-(\text{C}_m\text{H}_{lm}\text{O})_n-(\text{C}_m\text{H}_{lm}\text{O})_o-\text{R}^1$,

where

R¹ = is H, an aliphatic hydrocarbon radical a cycloaliphatic hydrocarbon, an aryl radical

10 which is unsubstituted or substituted,

l = 1 or 2,

m = 2 to 18,

the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

15 o = 0 to 100,

$-\text{NHR}^2$ and/or $-\text{NR}^2_2$ where

$\text{R}^2 = \text{R}^1$ or $-\text{CO-NH}_2$ and also

$-\text{Q}^1\text{N}-\text{Q}^2-\text{NQ}^3\text{Q}^4$, where

Q¹ is a hydrogen atom or a monovalent hydrocarbon radical;

20 Q² is a divalent alkylene radical;

Q³ and Q⁴ are aliphatic and/or alicyclic

alkyl radicals; and

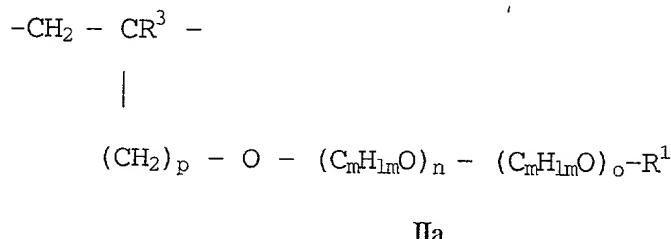
unoxidized or oxidized to $-Q^1N-Q^2-N(+)O(-)Q^3Q^4$,

Y = O, NR², R² being as defined above, or N-Q²-NQ³Q⁴,

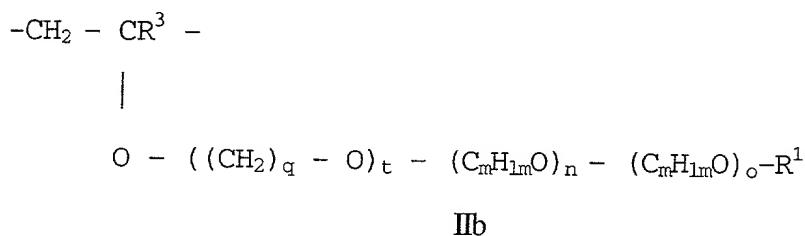
where

Q², Q³ and Q⁴ being as defined above,

5 b) from about 1 to about 89 mol% of structural groups of the formula IIa or IIb



10



15

in which

R³ = H, aliphatic hydrocarbon radical,

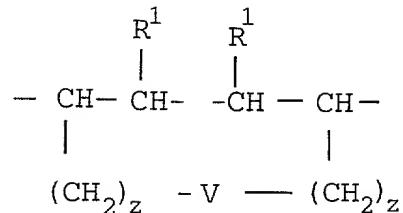
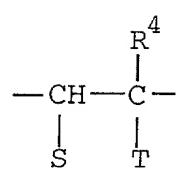
p = 0 to 3,

20 q = 0 to 6, t = 0 to 3, and

R¹ and l, m, n and o are as defined above,

c) about 0.1 to about 10 mol% structural groups of the formula IIIa or

IIIb



IIIa

IIIb

where

$$\text{R}^4 = \text{H, CH}_3$$

5 $\text{S} = -\text{H, -COOM}_a, -\text{COOR}^5$

where $\text{R}^5 =$ aliphatic hydrocarbon radical;

cycloaliphatic hydrocarbon radical;

aryl radical,

10 $\text{T} = -\text{U}^1-\text{O}-(\text{C}_m\text{H}_{l\text{m}}\text{O})_n-(\text{C}_m\text{H}_{l\text{m}}\text{O})_o-\text{R}^6$

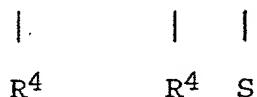
where $l = 1$ or 2 , $m = 2$ to 18 , and

$n = 0$ to 100 and $o = 0$ to 100 ,

$$\text{U}^1 = -\text{CO-NH-}, -\text{O-}, -\text{CH}_2\text{O-},$$

$$\text{R}^6 = \text{R}^1, -\text{CH}_2-\text{CH}-\text{U}^2-\text{C}=\text{CH}$$

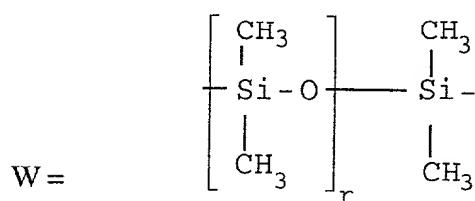
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$$\text{where } \text{U}^2 = -\text{NH-CO-}, -\text{O-}, -\text{OCH}_2, -\text{W-R}^7$$

where

20



r=2 to 100

$$R^7 = R^1, \quad - \left[(CH_2)_3 - NH \right]_s - CO - C \begin{matrix} | \\ R^4 \\ | \end{matrix} = CH \begin{matrix} | \\ S \end{matrix}$$

$$-\text{CH}_2\text{}_z\text{O}-\text{CO}-\text{C}=\text{CH}$$

|
R⁴ S

$s = 1$ or 2

$z = 0$ to 4,

$$^{10} \quad \text{--CO--} \left[\text{NH--} (\text{CH}_2)_3 \right]_s \text{--W--} \text{R}^7$$

$$- \text{CO} - \text{O} - (\text{CH}_2)_7 - \text{W} - \text{R}^7$$

15 $-\text{CH}_2\text{}_Z\text{VCH}_2\text{}_Z\text{CH=CH-R}^1$, where

V= -O-CO-C₆H₄-CO-O- or -W-,

$-\text{COOR}^5$ in the case of $\text{S} = -\text{COOR}^5$ or COOM_2 ,

and

20 V= -O-CO-C₆H₄-CO-O- or -W,

the ligands and indices each being as defined above

wherein the polymerization occurs in aqueous solution at a temperature of from about 20°C

to about 100°C in the presence of a free-radical initiator.

25